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10/542,318	07/13/2005	Keitaro Yonezawa	YONE3018/JEK	2692

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EXAMINER

WILSON, LEE D

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3723

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

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Interview Summary	Application No. 10/542,318	Applicant(s) YONEZAWA, KEITARO	
	Examiner LEE D. WILSON	Art Unit 3723	

All participants (applicant, applicant's representative, PTO personnel):

- (1) LEE D. WILSON. (3) ____.
- (2) PATRICK BUECHNER. (4) ____.

Date of Interview: 19 December 2006.

Type: a) ☐ Telephonic b) ☐ Video Conference
 c) ☐ Personal [copy given to: 1) ☐ applicant 2) ☒ applicant's representative]

Exhibit shown or demonstration conducted: d) ☒ Yes e) ☐ No.

If Yes, brief description: The outer sleeve 31 is slotted which allows the sleeve to move along the pin 33 while allowing a leading end portion to be fixedly connected to the outer sleeve and still function..

Claim(s) discussed: All claims of the official record.


Identification of prior art discussed: all art of record.

Agreement with respect to the claims f) ☒ was reached. g) ☐ was not reached. h) ☐ N/A.

Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: Due to the demonstration conducted by the applicant's representative, the language fixedly connecting the outer sleeve to a leading end reads over the prior art. The primary examiner suggests that the applicant draft claims using this language "fixedly connected" to define the patentable subject matter. The priority will be noted in the next response and in regard to the 112 rejection, the examiner suggests using "configured to" to overcome this rejection.

(A fuller description, if necessary, and a copy of the amendments which the examiner agreed would render the claims allowable, if available, must be attached. Also, where no copy of the amendments that would render the claims allowable is available, a summary thereof must be attached.)

THE FORMAL WRITTEN REPLY TO THE LAST OFFICE ACTION MUST INCLUDE THE SUBSTANCE OF THE INTERVIEW. (See MPEP Section 713.04). If a reply to the last Office action has already been filed, APPLICANT IS GIVEN A NON-EXTENDABLE PERIOD OF THE LONGER OF ONE MONTH OR THIRTY DAYS FROM THIS INTERVIEW DATE, OR THE MAILING DATE OF THIS INTERVIEW SUMMARY FORM, WHICHEVER IS LATER, TO FILE A STATEMENT OF THE SUBSTANCE OF THE INTERVIEW. See Summary of Record of Interview requirements on reverse side or on attached sheet.


LEE D. WILSON
PRIMARY EXAMINER

Examiner Note: You must sign this form unless it is an Attachment to a signed Office action.

 Examiner's signature, if required

What is claimed is:

1. (Currently Amended) A clamping apparatus, ~~wherein~~ comprising:

An annular central pillar (20) is projected from a reference block (1) toward a leading end,

an inner sleeve (21) is fitted onto the central pillar (20) axially movably within a predetermined range, and the inner sleeve (21) is advanced toward the leading end by a predetermined advancing stroke by an advancing means (25),

an outer sleeve (31) to be inserted into a socket hole (3) of a movable block (2) makes a wedge engagement with the inner sleeve (21) from the leading end side, and the outer sleeve (31) is adapted to be diametrically expandable and contractible,

an output member (36) is inserted into a cylindrical hole (20a) of the annular central pillar (20) axially movably, and a leading end portion of the output member (36) is connected to the outer sleeve (31),

a locking means (51) and a releasing means (52) are provided in the reference block (1), the locking means (51) moves the outer sleeve (31) toward a base end for locking via the output member (36), while the releasing means (52) moves the outer sleeve (31) toward the leading end for releasing via the output member (36).

2. (Original) The clamping apparatus as set forth in claim 1, wherein in place of the outer sleeve (31), which is diametrically expandable and contractible, an annular plug (71) to be inserted into the socket hole (3) is arranged on an outer periphery of the inner sleeve (21),

a plurality of pressing members (72) are supported on a peripheral wall (71a) of the annular plug (71) radially movably and are arranged circumferentially at intervals,

each of the pressing members (72) makes a wedge engagement with the inner sleeve (21) from the leading end side, and each of the pressing members (72) is movable radially inward by a restoring means (74),

the leading end portion of the output member (36) is connected to the annular

plug (71).

3. (Currently Amended) A clamping apparatus, ~~wherein~~ comprising:

an annular central pillar (20) is projected from a reference block (1) toward a leading end,

an inner engaging member (21) is arranged on an outer periphery of the central pillar (20),

an outer engaging member (31, 72) to be inserted into a socket hole (3) of a movable block (2) is diametrically expandable and contractible, the outer engaging member (31, 72) makes a wedge engagement axially with the inner engaging member (21), and the outer engaging member (31, 72), which is in the wedge engaged state, is movable toward a base end and diametrically expandable for locking,

an output member (36) is inserted into the annular central pillar (20) axially movably, and an output portion of the output member (36) is ~~connected~~ ^{fixedly} to either the outer engaging member (31, 72) or the inner engaging member (21),

an input portion of the output member (36) is connectable to a driving means (D).

4. (Original) The clamping apparatus as set forth in claim 3, wherein the outer engaging member is composed of an annular outer sleeve (31).

5. (Original) The clamping apparatus as set forth in claim 3, wherein the outer engaging member is composed of a plurality of pressing members (72) arranged circumferentially at intervals,

an annular plug (71) to be inserted into the socket hole (3) is arranged on an outer periphery of the inner engaging member (21), each of the pressing members (72) is supported on a peripheral wall (71a) of the annular plug (71) radially movably and is movable radially inward by a restoring means (74), the output portion of the output member (36) is connected to either the annular plug (71) or the inner engaging member (21).

6. (Original) The clamping apparatus as set forth in claim 3, wherein

the inner engaging member (21) is diametrically expandable and contractible.

7. (Original) The clamping apparatus as set forth in claim 3, wherein

the outer engaging member (31, 72) is advanced toward the leading end by an advancing means (25), and during the locking movement, the outer engaging member (31, 72) moves toward the base end against the advancing means (25) while diametrically expanding.

8. (Original) The clamping apparatus as set forth in claim 3, wherein

the inner engaging member (21) is diametrically expandable and contractible, an annular clearance (92) is formed between the central pillar (20) and the inner engaging member (21), and during the locking movement, the outer engaging member (31, 72) diametrically contracts the inner engaging member (21), and the outer engaging member (31, 72) moves toward the base end while diametrically expanding.

9. (Original) The clamping apparatus as set forth in claim 3, wherein

the outer engaging member (31, 72) makes a wedge engagement with the inner engaging member (21) from the leading end side.

10. (Original) The clamping apparatus as set forth in claim 3, wherein

the outer engaging member (31, 72) makes a wedge engagement with the inner engaging member (21) from the base end side.

11. (Original) The clamping apparatus as set forth in claim 3, wherein

substantially an entire circumference of an inner peripheral surface of the engaging member (21) is adapted to come into close contact with an outer peripheral surface of the central pillar (20).

12. (Currently Amended) The clamping apparatus as set forth in claim 3, wherein

at least one slit (22) is provided in a peripheral wall of the inner engaging member (21), and the inner engaging member (21) is diametrically expandable by ~~its own~~ an inherent elastic restoring force.

13. (Original) The clamping apparatus as set forth in claim 3, ~~wherein~~ and

further comprising:

a pair of projecting portions (62) (62), which radially face each other, are provided on at least one of the outer periphery of the central pillar (20), an inner or outer periphery of the inner engaging member (21) and an inner or outer periphery of the outer engaging member (31), while escape grooves (63) (63) are formed between these projecting portions (62) (62).

14. (Original) The clamping apparatus as set forth in claim 3, wherein the central pillar (20) is fixed to the reference block (1).

15. (Original) The clamping apparatus as set forth in claim 4, wherein the inner engaging member (21) is attached to at least one of the central pillar (20) and the output member (36) radially movably.

16. (Original) The clamping apparatus as set forth in claim 3, wherein the central pillar (20) is supported on the reference block (1) radially movably.

17. (Original) The clamping apparatus as set forth in claim 1 or 3, wherein in a state that the output member (36) has moved toward the leading end for releasing, the movable block (2) is received by the reference block (1) via the output member (36), and a seating gap (α) is formed between a support surface (1a) of the reference block (1) and a supported surface (2a) of the movable block (2).

18. (Original) A clamping system using the clamping apparatus as set forth in claim 1 or 4, wherein

two of the socket holes (3) (3) are provided in the movable block (2) at a predetermined interval,

a first plug means (11) and a second plug means (12) corresponding to the respective socket hole (3) (3) are provided in the reference block (1),

each of the plug means (11) (12) has the central pillar (20), the inner sleeve or the inner engaging member (21) and the outer sleeve (31),

the first plug means (11) is composed so that substantially an entire

circumference of an inner peripheral surface of the inner sleeve or substantially an entire circumference of an inner peripheral surface of the inner engaging member (21) is adapted to come into close contact with an outer peripheral surface of the central pillar (20),

the second plug means (12) is provided with a pair of projecting portions (62) (62), which radially face each other, on at least one of an outer periphery of the central pillar (20), an inner or outer periphery of the inner sleeve or the inner engaging member (21) and an inner or outer periphery of the outer sleeve (31), while escape grooves (63) (63) are formed between these projecting portions (62) (62).

19. (Original) A clamping system using the clamping apparatus as set forth in claim 2 or 5, wherein

two of the socket holes (3) (3) are provided in the movable block (2) at a predetermined interval,

a first plug means (11) and a second plug means (12) corresponding to the respective socket hole (3) (3) are provided in the reference block (1),

each of the plug means (11) (12) has the central pillar (20), the inner sleeve or the inner engaging member (21), the annular plug (71) and a plurality of the pressing members (72),

the first plug means (11) is composed so that substantially an entire circumference of an inner peripheral surface of the inner sleeve or substantially an entire circumference of an inner peripheral surface of the inner engaging member (21) is adapted to come into close contact with an outer peripheral surface of the central pillar (20), and three or more of the pressing members (72) are arranged circumferentially at intervals,

the second plug means (12) is provided with two of the pressing members (72), which radially face each other.

20. (Original) The clamping system as set forth in claim 18, wherein
at least one other socket hole (3) is provided in the movable block (2),

a third plug means (13) only for locking corresponding to said other socket hole (3) is provided in the reference block (1).

21. (Original) The clamping system as set forth in claim 19, wherein

at least one other socket hole (3) is provided in the movable block (2),

a third plug means (13) only for locking corresponding to said other socket hole (3) is provided in the reference block (1).

22. (Original) The clamping system as set forth in claim 20, wherein

the third plug means (13) has the central pillar (20), the inner sleeve or the inner engaging member (21), and the outer sleeve (31), the central pillar (20) is fixed to the reference block (1),

the inner sleeve or the inner engaging member (21) is attached to at least one of the central pillar (20) and the output member (36) radially movably.

23. (Original) The clamping system as set forth in claim 21, wherein

the third plug means (13) has the central pillar (20), the inner sleeve or the inner engaging member (21), the annular plug (71) and a plurality of the pressing members (72), and the central pillar (20) is fixed to the reference block (1), and the inner sleeve or the inner engaging member (21) is attached to the central pillar (20) radially movably.

24. (Original) The clamping system as set forth in claim 20, wherein

the third plug means (13) has the central pillar (20), the inner sleeve or inner engaging member (21), and the outer sleeve (31), and the central pillar (20) is supported on the reference block (1) radially movably.

25. (Original) The clamping system as set forth in claim 21, wherein

the third plug means (13) has the central pillar (20), the inner sleeve or the inner engaging member (21), the annular plug (71) and a plurality of the pressing members (72), and the central pillar (20) is supported on the reference block (1) radially movably.